

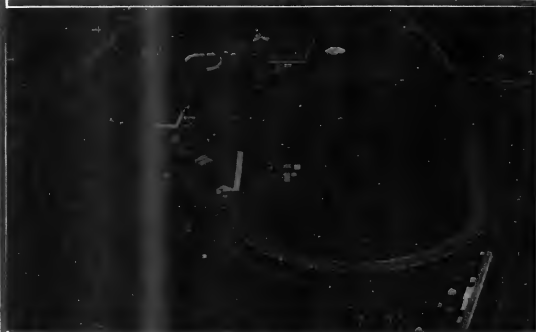
AVIATION

The Oldest American Aeronautical Magazine

FEBRUARY 23, 1925

Issued Weekly

PRICE 10 CENTS



Teaching the gospel of flying in the Middle West: Over the Bethany, Mo., Fair

VOLUME
XVIII

SPECIAL FEATURES

NUMBER
8

MARGINAL NOTES ON THE WINSLOW BILL
SAN FRANCISCO TO HAVE TAXIPLANE SERVICE
U. S. TO BUY LESS THAN 500 WAR PLANES IN 1925
AN EARLY FORERUNNER OF THE MODERN TORPEDO PLANE

GARDNER PUBLISHING CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office at Highland, N. Y.
under Act of March 3, 1879.



Curtiss Reed Duralumin Propeller used on U. S. Pursuit Planes

FAIRCHILD FLYING CORPORATION

(Incorporated in the State of New York)



NEW YORK, N. Y.

JANUARY 2, 1925

Dear Sirs:—We are pleased to inform you that the Curtiss Reed Duralumin Propeller, as used on the U. S. Pursuit Planes, is now being manufactured in the U. S. by the Fairchild Flying Corporation, New York, N. Y.

Sincerely,

As one of the leading aircraft manufacturers in the world, we have been able to secure the best of materials and the most skilled workmen for the manufacture of our aircraft. We have also been able to secure the best of materials and the most skilled workmen for the manufacture of our aircraft. We have also been able to secure the best of materials and the most skilled workmen for the manufacture of our aircraft.

We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y. We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y. We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y.

We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y. We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y. We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y.

We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y. We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y. We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y.

We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y. We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y. We are now manufacturing the Curtiss Reed Duralumin Propeller in the U. S. by the Fairchild Flying Corporation, New York, N. Y.

The Curtiss-Reed Duralumin Propeller will give YOU similar results

Our new prices will interest you

CURTISS AEROPLANE & MOTOR COMPANY, Inc.

Metal Propeller Department
Garden City, N. Y.

FEBRUARY 23, 1925

AVIATION

VOL. XVIII NO. 8

Published every Monday

CONTENTS

Editorial	289	Editor of AVIATION Goes Ahead	287
U. S. to Buy Less than 800 Planes in 1925	290	The Light Plane Propeller	297
The Schneider Racecourse Sport Plane	291	Light Planes and Gliders	298
Magical Notes on the Windsor Hill	292	100 km. Jupiter Test at 405 Rated hp	299
Penn-New York Flight Planned	293	Who Will Buy the Liberator?	299
San Francisco to have Tailplane Service	294	N. Y. Chapter of N.A.A. Election	310
The Week's Cover Illustration	295	Airports and Airways	306
Modern Torpedo Plane has Early Assembler	316	United States Air Forces	322

GARDNER PUBLISHING COMPANY, Inc., Publishers

GENERAL AND EDITORIAL ROOMS: 215 FOURTH AVENUE, NEW YORK

PUBLICATION OFFICE
HIGHLAND, N. Y.

Subscription price: Four dollars per year, Canada, five dollars, foreign, six dollars. Single copies ten cents. Each number 25 cents. Copyright 1925, by the Gardner Publishing Company

Issued every Monday. Forms close ten days previously. Entered as second-class matter Nov. 22, 1910, at the Post Office at Highland, N. Y., under act of March 3, 1879.

The National Steel Products Company

DAYTON, OHIO

CONTRACTORS TO THE U. S. GOVERNMENT

We are Manufacturers and Headquarters for Aircraft Parts

Siphon Type Fuel Pumps
Gravity Type Fuel Pumps
Oil and Water Pumps
Gasoline Level Gauges
Gasoline Cork Sealed Valves
Gasoline Strainers
Gasoline Filter Units
Gasoline Line Fittings
Fuel Relief Valves

Fuel Overflow Indicators
Fuel Pump Drive Assemblies
Intake Headers
Liberty High Compression Pistons
Standard Engine Controls
Manifold Service Belts
Improved Liberty Camshaft Drive Gears
Spars Wheel Carrier Assemblies
Liberty Engine Tool Kits

We specialize in the manufacture of Aircraft fittings, and are in a position to furnish Castings and Deep Forgings for all parts.

We have all the facilities of a completely equipped, modern tool and machine shop, and are in a position to quote you on your requirements.

All correspondence and inquiries will be given prompt and careful attention.

THE NATIONAL STEEL PRODUCTS CO.,
P. O. BOX 865, DAYTON, OHIO

FACTS ABOUT WRIGHT ENGINES

The eight bulletins illustrated describe the outstanding features of the entire assemblage of Wright Aeromarine Engines and the two Wright Marine Engines whose performance has become famous since they were placed on the marine market. Both marine and aeronautical bulletins contain power curves, weights, installation drawings, specifications, definite performance guarantees and facts that indisputably point to leadership in the engine's particular power range.

The air cooling advantages described in J-4 and L-4 bulletins are of especial interest. In all these bulletins the detailed accurate information given on the design and building of engines since the war will prove of unusual value. So thoroughly are these presented in each bulletin that it is suggested you write for all.

Four Prices
Prompt Deliveries
Definite Guarantees
Warranted against Defects



WRIGHT AERONAUTICAL
CORPORATION
PATENTING U. S. A.

WRIGHT ENGINES

L. D. GARRICK
PRESIDENT
L. D. GARRICK
VICE PRESIDENT
L. D. WOODRUM
TREASURER
CARLOS HERRICK
GENERAL MANAGER

LEONARD D'ORCY
1925
VICTOR E. CLARK
ERNEST P. WARREN
RALPH M. LAMON
LEONARD T. ALLEN
CONVENTIONAL EDITOR

AVIATION

VOL. XVIII

FEBRUARY 25, 1925

No. 8

Cooperation or Competition?

THINKER has always been a preoccupation on the part of our Air Services that Commercial Aviation was a thing to be encouraged. High officers in both the Army and Navy have expressed their desire to cooperate in that end in every way possible, and conversation with military men will reveal that they are really interested in assisting commercial aviation. The aviation that undoubtedly exists to a considerable extent between commercial firms and the Air Services largely results from a difference in training and mental attitude, and not from a competitive desire to accomplish the same end differently. The soldier trained in the discipline of the Army cannot comprehend the apparently casual attitude of the commercial firm toward rules and regulations, while the civilian pilot cannot understand the thoroughness of Service methods. That this difference will never be removed is true, but a realization on the part of commercial firms that the Air Service in its own peculiar way is trying to help them along and a better cooperation on the part of the Air Service of some of the aviation pilot's problems might remove a goodly amount of friction.

None of these problems can be seen in two ways. For instance, an Air Service officer desiring of assisting commercial firms allows a civilian the use of an empty Government hangar so that he may store his plane or conduct some tests. The Air Service is thus helping the firm, but it may at the same time be depriving a nearby commercial field of one much needed service. Or an Air Service plane takes some photographs of a special event and gives them to the local news papers, thereby bringing the value of aerial photography before the public. The Officer is thus creating a commercial end, but there are many instances where he has continued doing the most after commercial aviation were able to take and sell the necessary pictures.

The Air Services have done much experimental work with a view to adding commercial aviation, but the problem is to know when to stop. The Army submitted the early experiments in cotton dusting and now the Staff Board from its looking cotton dusting planes and is organizing to carry out the dusting work. This is a good aid to commercial aviation and shows that the Air Service not only means well but knows when to stop. On the other hand, Lieut. H. E. Harris one of the country's best pilots, has been granted a year's leave of absence so that he may help in the work and by doing this the Air Service is depriving some commercial pilot of a good job—well with the best intentions in the world.

The Air Service did much of the pioneering in aerial photography and mapping, and its work opened the eyes of the public to the value of our views, but in certain instances they have continued along this demand to the detriment of the commercial companies. From the commercial point of view,

the large mapping project which the Air Service is conducting in Texas is an encroachment on the field of civilian aerial map makers, though in this instance the Air Service has reasonable justification in the fact that the government must do a certain amount of printed map making. However, commercial aviation did that districts which have already been mapped could be chosen so that the Air Service would have some basis for checking the accuracy of aerial mapping when mapped to a map made in the regular way.

The Air Service's manner of doing experimental work, creating a demand and thus turning the matter over to civilian as soon as the proposition becomes practical is a most regrettable task and rather goes against business nature. The problem of the Air Service helping civilian aviation is not as simple as it appears at first glance and should be approached with tolerance from both sides. Is the absence of Federal legislation which would fix the methods and extent of government cooperation with commercial aviation and provide funds for the purpose, the underlying rule for such informal cooperation as is possible should be the policy which has been accepted in principle by the President and all the government flying services, then development of commercial aviation is essential to the national defense.

Aviation Rampant

IT has been felt in aviation circles that sooner or later "the day" would come in the nearby between the business and pleasure. This sensation has apparently been correct. The country from coast to coast is literally aflame with interest. The press, in news and editorial columns, is giving the right of way. What will result?

The chief result will be an intense interest on the part of the public in the future role of aviation in warfare. Equally important is the skepticism which the able services will meet when they make their proposals for extending their work. The public will have to be convinced more positively than ever before. And this result is not one day. It applies equally to the claims of aircraft passengers.

There will be other effects which can be regarded as minor, although as themselves they represent major problems in the little world of aviation. If, as has been rumored, the Washington Conference on the Benefits of Airmanhood was in some particular affected by the increasing popularity of aircraft, how much greater will be the past aircraft meet place in one-day conference. As President Coolidge has stated every time that he desires such an extraordinary meeting, it is possible that this conference over the military merits of air and air defense may have a wide range international significance. This is what is in our mind when we view the matter from a detached viewpoint.

U. S. to Buy Less than 500 War Planes in 1925

Issued Statement of Actual and Proposed Army and Navy Orders

The table of Government orders for airplanes scheduled for the fiscal years 1924-25 and 1925-26 which is printed below has been prepared from various statements recently made before Congressional Commissions. While the accuracy of the figures cannot be fully vouched for, it is believed that they are fairly representative of the actual situation.

While the Government is not making any definite plans for the future, it is believed that the various Government Departments plan to purchase less than 500 airplanes during the next fiscal year, which seems a fairly moderate estimate to keep a healthy industry in being.

SCHEDULED FOR ORDER
FISCAL YEAR ENDING JUNE 30, 1926

Type	Quantity	Engine
Fighters	27	Curtis D12 400 hp. WC
Observation	45	Wright 400 hp. AC or Curtis 400 hp. WC
Three-Purpose		
Torpedo	10	
Scouting	22	
Postal	20	
Training	40	
	115	

Type	Quantity	Engine
Primary Training	150	
Adversary		
Amphibious		
Observation		
Bombing Transport	50	Packard 600 hp. WC
Postal	50	Curtis D12 400 hp. WC
Amphibious		
Attack	10	Wright or Packard, WC
	300	

TOTAL 460
*To be placed before July 1, 1925.
No information yet on actual orders.

ON ORDER
FISCAL YEAR ENDING JUNE 30, 1925

Type	Quantity	Engine
Fighters	10	Curtis 400 hp. WC
Observation	40	4 Packard WC Wright or Curtiss 400 hp. WC
Three-Purpose		
Torpedo	10	Wright 575 hp. WC
Scouting	20	Wright 400 hp. WC
Postal	20	300 hp. AC
	100	

Type	Quantity	Engine
Primary Training	150	
Adversary		
Amphibious		
Observation		
Bombing Transport	50	Packard 600 hp. WC
Postal	50	Curtis D12 400 hp. WC
Amphibious		
Attack	10	Wright or Packard, WC
	300	

TOTAL 460
*To be placed before July 1, 1925.
No information yet on actual orders.



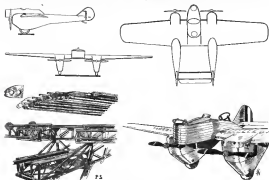
The Select Committee on Aircraft of the House of Representatives, with Brig. Gen. William Mitchell (center)—L. to R.: Representative Harold G. Brewster, chief counsel for the Committee; Francis Langford, chairman of the Committee; Rep. C. F. Lee of California; Rep. J. V. McClintock of Oklahoma; General Mitchell; Rep. A. N. Ford of Indiana; Rep. F. H. Reid of Illinois; Rep. A. S. Pratt of New York; and Rep. H. L. LeComber of New York.

The Schneider Bombardment Escort Plane

Description of a Novel French Twin-Engine Metal Monoplane

One of the most interesting machines at the Paris Aero Show was the twin-engine monoplane built by Schneider & Co., the powerful French armament firm which corresponds to Douglas or Grumman or to the Bethlehem Steel Co. in the United States. Except for this monoplane, the entire machine is made of a new light aluminum alloy put out by the

The airplane was seen to be built in a single piece and to be of uniform thickness and chord between the two fuselages, or 11 ft. 8 in., while the wingspan chord is 2 ft. 8 in. The span is 40 ft. 8 in. The wing has two main "Alfonsos" braced supported by compression members and also by two horizontal



Side view and details of the Schneider bombardment escort plane.

The sketches on the left show the internal construction of the wing and the wing spar at the engine mounting. The sketch on the right is a front-quarter view of the ship.

Schneider firm under the name of "Alfonso". The machine is a monoplane in design, but is an interesting attempt to give a good view and field of fire in all directions. From the drawings of the machine a clear field seems to have been established both to the front and to the rear, but intensity of vision is not so complete.

A New Military Type

The "bombardment escort" type of machine is little known in the United States, as far as we have ever tried to build one. Its mission is to escort bombing groups where the distance is too great for pursuit ships, and ward off the attack of enemy pursuit planes. Such a plane was not used during the last war and its practicability may not be proved or disproved until the next war, but there is always the possibility that a machine carrying no machine guns and possibly a small rocket could ward off the attack of the pursuit planes in which we specialize. The machine is of course comparatively non-maneuverable, and should be regarded in the light of a French gun platform.

It is so that the whole form is a huge cannon. Provided to the main beam and situated at outside intervals are a series of ports to which are fixed the covering. The covering is of corrugated metal, riveted on the outside, so that it can be replaced in part with considerable ease. There are also ribs to stiffen the covering.

The twin fuselages are of the monocoque type, of smooth aluminum reinforced internally by compression members. Each fuselage carries a radiator and vertical fin. The horizontal stabilizer connects the rear of the two fuselages, but does not extend beyond them. The fuselages are detachable from the main wing structure.

Has Extensive Field of Fire

The machine is actually situated between the two fuselages and is mounted onto the wing in such a way that it can easily be detached for repairs. There is a machine gunner's cockpit in the nose, well ahead of the propellers and engine, which gives a splendid forward field of fire. The rear gun cockpit is quite a little in front of the landing gear and the gunner

San Francisco to Have Taxiplane Service

Varney Air Service Merges with Checker Cab. Co.

One of the greatest forward steps ever taken in this country to make commercial air transport available to the public is announced from the Pacific coast with the consolidation of the respective interests of Walter T. Varney and the Checker Cab Co., both of San Francisco, for the purpose of operating a taxiplane service to any point on the West coast.

From Los Angeles, a distance of 340 mi., takes a whole day by railroad whereas it can easily be covered by a taxiplane of the type used by the Checker Air Service Co. in, at, & by. A business man of San Francisco will thus be able to leave the city early in the morning, transact business in Los Angeles, and be home again by night — a clear saving of time.



The officers of the newly formed Checker Air Service Co., of San Francisco—(L. to R.) W. L. Reinhardt, treasurer; Walter T. Varney, chief of air service; Mel Brandt, construction superintendent; J. A. Belsa, president; J. W. Peters, vice president and general manager; A. L. Murphy, secretary.

The new company, which will be known as the Checker Air Service Co., is capitalized for \$500,000 and will be directed by officers of the present Varney Air Service and Checker Cab as follows: President, J. A. Belsa, Vice President and General Manager, J. W. Peters, Chief of Air Service, Walter T. Varney. Its secretary, A. L. Murphy, Viceconstructer, W. L. Reinhardt, Construction Manager, Mel Brandt.

To Operate Modern Equipment

The air fleet of the company consists of three New Seahears, two Hispano-Bonachers and two Hispano-Jennies. The latter, of three main New Seahears is expected shortly. All these ships will carry two passengers and light hand baggage beside the pilot.

With two passengers bound for the same destination, the rate per mile will be 20 cents per passenger, which is more than a 50 per cent reduction on the fare commonly charged by air transport companies in this country.

What this service will mean for the Pacific coast will be appreciated when it is known that the trip from San Francisco to Los Angeles, a distance of 340 mi., takes a whole day

by railroad whereas it can easily be covered by a taxiplane of the type used by the Checker Air Service Co. in, at, & by. A business man of San Francisco will thus be able to leave the city early in the morning, transact business in Los Angeles, and be home again by night — a clear saving of time.

The new company will also incorporate night flying types traversing the district south of San Jose and back over Cuba, south thence to San Diego and the vicinity of Mexico. In two hours, or less, the visitor will be able to find out more about San Francisco and its environs than would be possible during a couple of weeks, all for a cost \$25.00. It is also planned to handle package freight and parcel delivery which are so vital necessities for business development.

A Prediction Comes True

Besides operating commercial planes, the company announces that it will inaugurate passenger ships for the coast service. The announcement follows closely on the heels of an editorial by Mr. Reinhardt in the *Record* papers headed

"The Flying Machine, It Will Change Life." Pointing out the wonderful future the airplane service he wrote among other things:

"Flying for long journeys will replace railroading completely within the lives of middle-aged men now living. Transportation through the air on a great commercial scale will probably be developed first in this part of the world" (California) for here the need is greatest. California can fly a thousand miles along their own coast and stay out of and avoid two or three loaded oceanic ships and their cash cost.

"I think that in the first in the field of successful commercial flying, on a big scale."

To Start Operation April 8

The prophecy in now come true for San Francisco and its neighbors. Beginning April 8, next, the Checker Air Service Co. will start operating the first commercial taxiplane—perhaps not only in America. How it now the new plan will work. A pilot line will be the company will bring one of its taxiplanes to the shore and carry the transfer to Crissy Field, where a landing will be in readiness to fly him to any point on the Pacific Slope. At the point of destination another taxiplane will be waiting to take the transfer to the city. The loss of time involved in traveling from a city to its airport and vice versa, which has so far been one of the most serious difficulties in a coast service had to be met with, will thus be out down in a moment.

It is rightly conducted flying in far safer than relying on our crowded highways in the company of Mr. Varney, who is a pioneer in flying, in training pilots, and in carrying passengers.

He has been in the work since 1916 and having flown a total distance of 150,000 mi., he has never had a fatality or any serious trouble. He points out that "taxiplanes" will be so fully safeguarded as properly managed railroads and that accidents are only possible through carelessness or short flying. Mr. Varney has taught hundreds of fliers at his school and employs as San Carlos, many of them, long students from China, South America, and other foreign countries. He has one of the largest schools of the kind in America and has built every successful plane. He fully expects that not only new fliers would now make full use of the airplane service. He also is an enthusiastic pilot and has flown practically every day.

This Week's Cover Illustration

The first aerial photograph which is reproduced on this week's cover was kindly contributed to *AVIATION* by G. Howard Dumas, of Turin, Mo., who writes as follows:

"The photograph shows a typical scene in the Middle West, where the people of flying in large spread rank year. At each of the many farms held in this part of the country you will always find at least one ship, frequently more. Crews ranging from 2,000 to 30,000 people on these occasions give a well done-up of flying which they would not otherwise. And the small operator with one or two ships keeps a harvest in passenger work."

"This particular picture shows the Ballou, Mo., Fair, and that the picture was made there were 20,000 people present. The photograph was taken with a 'NA Graphic' camera from a 'Skyline plane'."

Modern Torpedo Plane has Early Ancestor

Just that torpedo planes are recognized as a necessary complement of the other types of aircraft making up Naval armament, it is interesting to find that an experimental torpedo plane was built and flown as early as 1912, and that a T-90 torpedo was launched from it two years later.

The plane is pictured, which is illustrated herewith, was built at the Italian navy yard in Venice, to the design of

The power plant consisted of two 228 hp. Gnome 14 cylinder rotary engines which were mounted in the fuselage behind the pilot's cockpit, with a co-axial propeller turning on a torpedo.

Some constructional features rendered this ship remarkable at the time it was produced. The wing spars and ribs were constructed of duralumin and wood; the fuselage was of wood.



The earliest forerunner of the modern torpedo plane—The Gnome float biplane, built in 1912, at the moment of taking off.

Gen. Alessandro Guidoni, formerly Italian air attaché in Washington and now chief of the constructive corps of the Italian air force. As may be seen, the plane was an extremely broad conception with lateral control surfaces on the bottom of the fuselage and its bottom gear consisted of rather springy twin floats which were fitted with a series of hydroplanes. The latter provision assured the purpose of lowering the take-off through the dynamic reaction of the water.

Gen. Alessandro Guidoni, formerly Italian air attaché in Washington and now chief of the constructive corps of the Italian air force. As may be seen, the plane was an extremely broad conception with lateral control surfaces on the bottom of the fuselage and its bottom gear consisted of rather springy twin floats which were fitted with a series of hydroplanes. The latter provision assured the purpose of lowering the take-off through the dynamic reaction of the water.

The machine had the following characteristics: Span 60 ft., overall length 80 ft., wing area 1,000 sq. ft., weight empty 5,000 lb., weight loaded 9,000 lb.

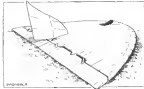
When the World War broke out Italy being in the practical state of such a "floatplane" ship was taken down and stood away to other history.

LIGHT PLANES AND GLIDERS

Edited by Edmund T. Allen

Gliding Activities in Russia

Considerable interest attended the holding of the second annual All-Russian gliding competition which was held near Frudokin, in the Caucasus, last September, but of which detailed information has only now come to hand.



An unusual glider which has made flights at a 1 mile 20 sec duration. The "Parabola" built by the Russian engineer Chernomir.

Forty-eight gliders were entered against each other previous year and of all but ten of the entries actually made flights. There were in 1933 the largest gliding flight, made by Leonid Yermolov, was of only one hour's duration, but year the new pilot made an endurance flight which was within six hours of the world's record, while half a dozen pilots made flights of from 300 to six hours' duration.

Yermolov, piloting a Morzhovsk glider, measured about 1 by 1/2 mi. The machine is a high-wing monoplane of the cantilever type which is a development of the Hanover Vanyne. The span is 94 ft., the wing area 325 sq. ft., and the weight empty 200 lb.

The largest flight was made by Pilot Yelchikov in a Kuybyshev, with a 1 1/2 mi. flight. This glider, built and entered by the Kuybyshev Students' Club, is like the Morzhovsk a cantilever monoplane of high aspect ratio. The span is 51 ft., the wing area 186 sq. ft. and the weight empty 264 lb. Flights of 5 hr. and 4 1/2 hr. duration were made by Pilot Serebren in the Artamonov glider, which is a cantilever high-wing monoplane of 420 ft. span and 170 lb. weight empty.

Pilot Huhov, who unfortunately lost his life before the end of the competition, made a 5 hr. flight on the Ikar glider, a machine about which no information is at hand. Another current, Krasovsk, also met his death in a flight.

All flights were made from the Tsim field, an airport on a steep slope, 200 ft. high, which proved very suitable for the gliding experiments as it permitted starts northwest and southwest according to the prevailing wind.

Most gliders were entered by amateur associations of interested high schools which have been formed in Tsim on the Russian coast with a view to encouraging aviation and aerobatic flight. The ultimate purpose of the association is to bring about the creation of an efficient low-powered aerial service.

The most unusual looking glider was the "Parabola," invented and built by Engineer Chernomir. This machine was literally a flying wing, as may be seen from the accompanying sketch, which was reproduced by courtesy of Flyer

Despite its odd looks, the glider accomplished several record flights up to 1 mi. 20 sec. duration, showing a flat gliding mode and rather good controllability. The pilot used a control stick at the leading edge of the parabola wing. A pair of elevator surfaces, with rubber bands for control, the latter are moved differentially for lateral control and automatically for elevator control. A tail fin is fitted below the middle.

The Parabola has a span of 32 ft., 20 in., a wing area of 315 sq. ft. and a weight empty of 120 lb.

Altogether 378 flights of a total duration of 37 hr. were made on the thirty-three gliders which participated in the event which was organized by the Society of Friends of the Air Fleet, the active aeronautics propaganda body of Soviet Russia.

Regarding the 80 cu. in. Limit

Light Plane Editor, Answer—

Well it seems that the light plane enthusiast's heart goes to you just after paying away with the 37 in. Harley sport engine. If the Englishman can fly with motors of a little over 100 cu. in. capacity, we can. And the only way to bring the displacement to perfection is to keep the present piston displacement.

Leslie Bradley says, shortly before he was killed in his unfortunated monoplane, "Guns are enough power and I'll fly a kamikaze!" And some of the light plane builders are saying, "Give us more power and we can fly our impetuous dream."

Impetuous designs are not what we want here. Let those planes that will not fly well with over an 80 cu. in. motor stay in the fan, and the builders will come to realize that we have the motor, and not the engine, and the same perfection of design that our friends across the water show.

The writer has heard and read some fairly different accounts of various make and type, as well as having in a brief in the design and construction of several motorcycle engine airplanes, as far back as 1928. The American motorcycle engine, if properly tuned and properly balanced will do everything a pilot could demand of it. For one thing, the motorcycle engine can be altered in several respects toward a lighter weight. The flywheel of the average big size is the heaviest parts of the engine, often weighing as much as 20 lb. They can be put in a tube and the mass turned down to take out the weight nearly a third. The poppet valve can be cut out of aluminum, and set itself as a well balanced device.

The next heaviest parts of the engine are the cylinder and piston. The cylinders can be lightened by removing as much material as possible, but the cylinder barrel will remain cold under such conditions in its use. The writer would recommend such a procedure as a Pope, 1918, (German) Vee type which was used with considerable success on a light plane at Seeger's field.

Aluminum alloy pistons should be fitted in place of the cast iron pistons, both for added power and less vibration. However, the job should be done at the factory where the engine was made, in order that the connecting rods and flywheels will be balanced accordingly. The writer has found though, that when an excessive clearance is worked the alloy pistons will "blow-up" at high speeds, so care should be taken on that point.

Also, all the engine should be hand balanced in the factory and a frequency of 3600 per hour be known. The writer would simply refer for bearing loads and slip wash early 70 or 80 cu. in. were obtainable as a 30 lb. single cylinder motor, after having fitted an alloy piston.

This excellent family believe, in view of post road engine, that there is no particular motorcycle engine specially suited to light planes, which has been so far overlooked. The Indian Scout 300 cc. engine will develop about 21 hp. at about 3500 rpm. and is capable of holding up for long periods on full throttle. This is the type of engine in which the English have the most success. Irvington will develop (that the English V type Blackhawk of 501 cc. engine which was successfully flown from London to Newark was of the high speed type, geared down to turn a 4 ft. wheel 1400 rpm. That this Indian Scout motor will not hold itself in an established fact. A motor some size of these makes, but a record across the country previously made at 80 cu. in. is in Newhouse.

For all motors, let us keep the displacement down to the present 80 cu. in. limit.

T. A. Haines
Cincinnati, Ohio.

New Morehouse Engine

First tests of the new 60 cu. in. Morehouse light plane engine will be completed shortly, following which it will be fully described in Aviation.

100 H.P. Jupiter Test at 425 Rated H.P.

A further striking demonstration of the efficiency of the French "Jupiter" motorized engine is offered by the way in which it has just completed a 200 lb. British Type Test, at its rated 100 h.p. in 100 seconds, at 525 h.p. at 1000 normal rpm. Probably the outstanding feature of the test was the fact that after 205 lb. running (5 lb. per lb. test) at 1000 rpm for power output, high speed tests, etc., the 100 cu. in. power developed was approximately in excess of that recorded in the earlier stages and showed 472 hp. at 1050 rpm—more than permissible revolution for the engine.

The series of tests which were officially supervised followed the latest schedule laid down by the British Air Ministry, which consisted in the series of five run-step series of 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1150, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1230, 1240, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, 1390, 1400, 1410, 1420, 1430, 1440, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 1680, 1690, 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000, 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2090, 2100, 2110, 2120, 2130, 2140, 2150, 2160, 2170, 2180, 2190, 2200, 2210, 2220, 2230, 2240, 2250, 2260, 2270, 2280, 2290, 2300, 2310, 2320, 2330, 2340, 2350, 2360, 2370, 2380, 2390, 2400, 2410, 2420, 2430, 2440, 2450, 2460, 2470, 2480, 2490, 2500, 2510, 2520, 2530, 2540, 2550, 2560, 2570, 2580, 2590, 2600, 2610, 2620, 2630, 2640, 2650, 2660, 2670, 2680, 2690, 2700, 2710, 2720, 2730, 2740, 2750, 2760, 2770, 2780, 2790, 2800, 2810, 2820, 2830, 2840, 2850, 2860, 2870, 2880, 2890, 2900, 2910, 2920, 2930, 2940, 2950, 2960, 2970, 2980, 2990, 3000, 3010, 3020, 3030, 3040, 3050, 3060, 3070, 3080, 3090, 3100, 3110, 3120, 3130, 3140, 3150, 3160, 3170, 3180, 3190, 3200, 3210, 3220, 3230, 3240, 3250, 3260, 3270, 3280, 3290, 3300, 3310, 3320, 3330, 3340, 3350, 3360, 3370, 3380, 3390, 3400, 3410, 3420, 3430, 3440, 3450, 3460, 3470, 3480, 3490, 3500, 3510, 3520, 3530, 3540, 3550, 3560, 3570, 3580, 3590, 3600, 3610, 3620, 3630, 3640, 3650, 3660, 3670, 3680, 3690, 3700, 3710, 3720, 3730, 3740, 3750, 3760, 3770, 3780, 3790, 3800, 3810, 3820, 3830, 3840, 3850, 3860, 3870, 3880, 3890, 3900, 3910, 3920, 3930, 3940, 3950, 3960, 3970, 3980, 3990, 4000, 4010, 4020, 4030, 4040, 4050, 4060, 4070, 4080, 4090, 4100, 4110, 4120, 4130, 4140, 4150, 4160, 4170, 4180, 4190, 4200, 4210, 4220, 4230, 4240, 4250, 4260, 4270, 4280, 4290, 4300, 4310, 4320, 4330, 4340, 4350, 4360, 4370, 4380, 4390, 4400, 4410, 4420, 4430, 4440, 4450, 4460, 4470, 4480, 4490, 4500, 4510, 4520, 4530, 4540, 4550, 4560, 4570, 4580, 4590, 4600, 4610, 4620, 4630, 4640, 4650, 4660, 4670, 4680, 4690, 4700, 4710, 4720, 4730, 4740, 4750, 4760, 4770, 4780, 4790, 4800, 4810, 4820, 4830, 4840, 4850, 4860, 4870, 4880, 4890, 4900, 4910, 4920, 4930, 4940, 4950, 4960, 4970, 4980, 4990, 5000, 5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090, 5100, 5110, 5120, 5130, 5140, 5150, 5160, 5170, 5180, 5190, 5200, 5210, 5220, 5230, 5240, 5250, 5260, 5270, 5280, 5290, 5300, 5310, 5320, 5330, 5340, 5350, 5360, 5370, 5380, 5390, 5400, 5410, 5420, 5430, 5440, 5450, 5460, 5470, 5480, 5490, 5500, 5510, 5520, 5530, 5540, 5550, 5560, 5570, 5580, 5590, 5600, 5610, 5620, 5630, 5640, 5650, 5660, 5670, 5680, 5690, 5700, 5710, 5720, 5730, 5740, 5750, 5760, 5770, 5780, 5790, 5800, 5810, 5820, 5830, 5840, 5850, 5860, 5870, 5880, 5890, 5900, 5910, 5920, 5930, 5940, 5950, 5960, 5970, 5980, 5990, 6000, 6010, 6020, 6030, 6040, 6050, 6060, 6070, 6080, 6090, 6100, 6110, 6120, 6130, 6140, 6150, 6160, 6170, 6180, 6190, 6200, 6210, 6220, 6230, 6240, 6250, 6260, 6270, 6280, 6290, 6300, 6310, 6320, 6330, 6340, 6350, 6360, 6370, 6380, 6390, 6400, 6410, 6420, 6430, 6440, 6450, 6460, 6470, 6480, 6490, 6500, 6510, 6520, 6530, 6540, 6550, 6560, 6570, 6580, 6590, 6600, 6610, 6620, 6630, 6640, 6650, 6660, 6670, 6680, 6690, 6700, 6710, 6720, 6730, 6740, 6750, 6760, 6770, 6780, 6790, 6800, 6810, 6820, 6830, 6840, 6850, 6860, 6870, 6880, 6890, 6900, 6910, 6920, 6930, 6940, 6950, 6960, 6970, 6980, 6990, 7000, 7010, 7020, 7030, 7040, 7050, 7060, 7070, 7080, 7090, 7100, 7110, 7120, 7130, 7140, 7150, 7160, 7170, 7180, 7190, 7200, 7210, 7220, 7230, 7240, 7250, 7260, 7270, 7280, 7290, 7300, 7310, 7320, 7330, 7340, 7350, 7360, 7370, 7380, 7390, 7400, 7410, 7420, 7430, 7440, 7450, 7460, 7470, 7480, 7490, 7500, 7510, 7520, 7530, 7540, 7550, 7560, 7570, 7580, 7590, 7600, 7610, 7620, 7630, 7640, 7650, 7660, 7670, 7680, 7690, 7700, 7710, 7720, 7730, 7740, 7750, 7760, 7770, 7780, 7790, 7800, 7810, 7820, 7830, 7840, 7850, 7860, 7870, 7880, 7890, 7900, 7910, 7920, 7930, 7940, 7950, 7960, 7970, 7980, 7990, 8000, 8010, 8020, 8030, 8040, 8050, 8060, 8070, 8080, 8090, 8100, 8110, 8120, 8130, 8140, 8150, 8160, 8170, 8180, 8190, 8200, 8210, 8220, 8230, 8240, 8250, 8260, 8270, 8280, 8290, 8300, 8310, 8320, 8330, 8340, 8350, 8360, 8370, 8380, 8390, 8400, 8410, 8420, 8430, 8440, 8450, 8460, 8470, 8480, 8490, 8500, 8510, 8520, 8530, 8540, 8550, 8560, 8570, 8580, 8590, 8600, 8610, 8620, 8630, 8640, 8650, 8660, 8670, 8680, 8690, 8700, 8710, 8720, 8730, 8740, 8750, 8760, 8770, 8780, 8790, 8800, 8810, 8820, 8830, 8840, 8850, 8860, 8870, 8880, 8890, 8900, 8910, 8920, 8930, 8940, 8950, 8960, 8970, 8980, 8990, 9000, 9010, 9020, 9030, 9040, 9050, 9060, 9070, 9080, 9090, 9100, 9110, 9120, 9130, 9140, 9150, 9160, 9170, 9180, 9190, 9200, 9210, 9220, 9230, 9240, 9250, 9260, 9270, 9280, 9290, 9300, 9310, 9320, 9330, 9340, 9350, 9360, 9370, 9380, 9390, 9400, 9410, 9420, 9430, 9440, 9450, 9460, 9470, 9480, 9490, 9500, 9510, 9520, 9530, 9540, 9550, 9560, 9570, 9580, 9590, 9600, 9610, 9620, 9630, 9640, 9650, 9660, 9670, 9680, 9690, 9700, 9710, 9720, 9730, 9740, 9750, 9760, 9770, 9780, 9790, 9800, 9810, 9820, 9830, 9840, 9850, 9860, 9870, 9880, 9890, 9900, 9910, 9920, 9930, 9940, 9950, 9960, 9970, 9980, 9990, 10000.

The series of tests which were officially supervised followed the latest schedule laid down by the British Air Ministry, which consisted in the series of five run-step series of 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1150, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1230, 1240, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, 1390, 1400, 1410, 1420, 1430, 1440, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 1680, 1690, 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000, 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2090, 2100, 2110, 2120, 2130, 2140, 2150, 2160, 2170, 2180, 2190, 2200, 2210, 2220, 2230, 2240, 2250, 2260, 2270, 2280, 2290, 2300, 2310, 2320, 2330, 2340, 2350, 2360, 2370, 2380, 2390, 2400, 2410, 2420, 2430, 2440, 2450, 2460, 2470, 2480, 2490, 2500, 2510, 2520, 2530, 2540, 2550, 2560, 2570, 2580, 2590, 2600, 2610, 2620, 2630, 2640, 2650, 2660, 2670, 2680, 2690, 2700, 2710, 2720, 2730, 2740, 2750, 2760, 2770, 2780, 2790, 2800, 2810, 2820, 2830, 2840, 2850, 2860, 2870, 2880, 2890, 2900, 2910, 2920, 2930, 2940, 2950, 2960, 2970, 2980, 2990, 3000, 3010, 3020, 3030, 3040, 3050, 3060, 3070, 3080, 3090, 3100, 3110, 3120, 3130, 3140, 3150, 3160, 3170, 3180, 3190, 3200, 3210, 3220, 3230, 3240, 3250, 3260, 3270, 3280, 3290, 3300, 3310, 3320, 3330, 3340, 3350, 3360, 3370, 3380, 3390, 3400, 3410, 3420, 3430, 3440, 3450, 3460, 3470, 3480, 3490, 3500, 3510, 3520, 3530, 3540, 3550, 3560, 3570, 3580, 3590, 3600, 3610, 3620, 3630, 3640, 3650, 3660, 3670, 3680, 3690, 3700, 3710, 3720, 3730, 3740, 3750, 3760, 3770, 3780, 3790, 3800, 3810, 3820, 3830, 3840, 3850, 3860, 3870, 3880, 3890, 3900, 3910, 3920, 3930, 3940, 3950, 3960, 3970, 3980, 3990, 4000, 4010, 4020, 4030, 4040, 4050, 4060, 4070, 4080, 4090, 4100, 4110, 4120, 4130, 4140, 4150, 4160, 4170, 4180, 4190, 4200, 4210, 4220, 4230, 4240, 4250, 4260, 4270, 4280, 4290, 4300, 4310, 4320, 4330, 4340, 4350, 4360, 4370, 4380, 4390, 4400, 4410, 4420, 4430, 4440, 4450, 4460, 4470, 4480, 4490, 4500, 4510, 4520, 4530, 4540, 4550, 4560, 4570, 4580, 4590, 4600, 4610, 4620, 4630, 4640, 4650, 4660, 4670, 4680, 4690, 4700, 4710, 4720, 4730, 4740, 4750, 4760, 4770, 4780, 4790, 4800, 4810, 4820, 4830, 4840, 4850, 4860, 4870, 4880, 4890, 4900, 4910, 4920, 4930, 4940, 4950, 4960, 4970, 4980, 4990, 5000, 5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090, 5100, 5110, 5120, 5130, 5140, 5150, 5160, 5170, 5180, 5190, 5200, 5210, 5220, 5230, 5240, 5250, 5260, 5270, 5280, 5290, 5300, 5310, 5320, 5330, 5340, 5350, 5360, 5370, 5380, 5390, 5400, 5410, 5420, 5430, 5440, 5450, 5460, 5470, 5480, 5490, 5500, 5510, 5520,

SOLVED!

THE LOENING AMPHEBIAN

A water land plane — A machine without

Equal
for the last time only

THE MOST PRACTICAL AND USEFUL AIRPLANE

- operates in an amazingly fast and maneuverable—
- immediately recoverable in rough water—
- safe in landing on the most difficult fields—

THE TWO OF "ISLAND" AIRPLANES OVER WATER IS NOW PERMANENTLY SUPERSEDED AND OUT OF DATE

LOENING AERONAUTICAL ENGINEERING CORPORATION

Hix St., 4 East River
New York City

The weekly issue of AVIATION that you miss,

because you are not a regular subscriber, may contain the article, news story, picture or advertisement which you could have used with profit.

If you are a Service or civilian flyer AVIATION is an indispensable adjunct to your calling, because in each weekly issue it publishes news service and commercial flying news that appears in no monthly, and, more important, it is NEWS when it appears in AVIATION.

AVIATION is written and edited by a staff trained to the aeronautical viewpoint for the man who is definitely interested or engaged in aeronautics. It presents fully and accurately each week the latest news and technical developments.

Discussions, photographs and drawings of the latest aircraft appear first in AVIATION and frequently in no other magazine.

For less than eight cents a week—Four Dollars a year—you will receive 52 issues of the only American weekly aircraft publication and the recognized trade authority.

A LIMITED SPECIAL OFFER:

Put a Two Dollar Bill to the coupon and we will enter your trial order for the next 26 issues.

The only American
Aircraft Magazine

AVIATION

The only American
Aircraft Weekly

AVIATION — 225 4th Avenue, New York.

Send me the next 26 issues of AVIATION. Two Dollars in cover is enclosed.

Take Advantage of This Offer

Five Dollars Worth for \$4.00

We have left from an edition of 5,000 a few copies of WHO'S WHO IN AMERICAN AERONAUTICS. To clear our shelves and make way for the new edition of WHO'S WHO which is now in preparation, we will mail, postpaid as long as the supply lasts, a copy of this valuable reference book

Free with each new subscription to AVIATION

(or \$4.00 in the U. S., Canada and Mexico \$5.00, other foreign \$6.00)

received before March 1, 1925.

While this offer lasts you may secure AVIATION for a year (52 issues) at the regular subscription rate and WHO'S WHO IN AMERICAN AERONAUTICS, (the regular price of which to everyone has been \$1.00) for the cost of a subscription alone.

Who's Who contains nearly a thousand biographies of those prominent in American Aeronautics. Hundreds of photographs, valuable statistical references, organization and directory of the Army Air Service, Bureau of Aeronautics, Navy Department, Air Mail Service and other important organizations.

AVIATION is the only American publication which gives each week a review of the important news of aeronautics throughout the world; photographs and descriptions of the latest machines and independent editorial expression on the problems and progress of flying in the United States.

You need AVIATION to keep in touch with big new developments this year, and you will find WHO'S WHO a valuable supplement to your reading.

This is an offer of genuine value but it is limited to only about 100 new subscribers.

So Send In The Coupon Now

GARDNER PUBLISHING CO.
225 FOURTH AVENUE, NEW YORK

For the enclosed dollar (\$4.00 in U. S., \$5.00 in Mexico and Canada, other foreign \$6.00) send me postpaid a copy of Who's Who in American Aeronautics and the next 52 issues of AVIATION, in accordance with your special offer.



BOEING PURSUIT

Recognized by Military Services as the Finest Single
Seater Fighter in the World

The ORIGINAL combination of:

An Underslung Sloping Core Radiator;

A Small Body properly arranged;

A Semi-thick Airfoil Section of True Contour throughout
the entire length of both the Small Elliptical Lower
Wing and the Larger Tapered Upper Wing;

A Single Bay Biplane with external brace wires in Front
Truss Only;

An ideal proportioning of Unbalanced Control Surfaces,
giving unprecedented ease and range of control.

DESIGNED IN THE YEAR 1922; PRODUCED AND FLOWN EARLY IN THE YEAR 1923

BOEING AIRPLANE COMPANY
SEATTLE, WASHINGTON

